

# A New Species of *Ischnochiton* (Mollusca: Polyplacophora) from the Tropical Eastern Pacific

by

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*Abstract.* *Ischnochiton skoglundii* Ferreira, spec. nov., dredged from 8-15 m, Nayarit, Mexico, differs from other species of the genus in the area by its very small size (less than 5 mm long), broad, ovate body, sculptureless tegmentum, and girdle scales with spherules on the upper surface, riblets on the sides, and a round concavity on the insertion face. A brief historical account of the genus *Ischnochiton* Gray, 1847, is given.

EXAMINATION OF A lot consisting of very small chitons, dredged off Nayarit, Mexico, revealed 13 minute specimens less than 5 mm long, which were dry and well preserved. Of these, eight were firmly attached to fragments of old shells, still maintaining a "living" position. The species, not hitherto recognized, is here allocated to the genus *Ischnochiton* Gray, 1847a.

Class Polyplacophora Gray, 1821

Order Neoloricata Bergenhayn, 1955

Suborder Ischnochitonina Bergenhayn, 1930

Family Ischnochitonidae Dall, 1889

Genus *Ischnochiton* Gray, 1847a

**Type species:** *Chiton textilis* Gray, 1828, by subsequent designation (GRAY, 1847b).

**Remarks:** Interpretations of the genus *Ischnochiton* are still in a state of flux. Although a full discussion of *Ischnochiton* is beyond the scope of this paper, some historical observations may better explain the allocation of *skoglundii* to the genus.

*Ischnochiton* was established by GRAY (1847a:126-127) for species characterized by "Valves thin; posterior valve entire; the plates of insertion very thin, smooth-edged, of the central valves each with a single notch [slit]; margin [girdle] covered with very small imbricated scales."

The large number of species in *Ischnochiton* and their diverse characteristics led Carpenter (*in* DALL, 1879) to partition it into eight subgenera. Similarly, PILSBRY (1892a) divided *Ischnochiton* into seven subgenera, some further split into "sections." Although several subgenera were eventually removed from *Ischnochiton*, either elevated to genera or synonymized, its number soon grew to 18 in the conservative view of SMITH (1960).

This unsatisfactory arrangement was further complicated by the finding (ASHBY, 1931:36; Allyn G. Smith *in* KAAS, 1974) that the intermediary valves of *Chiton textilis*, type species of *Ischnochiton*, are two-slitted and not one-slitted as assumed by GRAY (1847a) and PILSBRY (1892b: 99). Because this finding made it appear that *Ischnochiton* was without a type, VAN BELLE (1974) erected *Simplischnochiton* (type species, *Ischnochiton maorianus* Iredale, 1914, new name for *Chiton longicymba* Quoy & Gaimard, 1835, not Blainville, 1825) for the one-slitted species, retaining *Ischnochiton* for two-slitted species. KAAS (1974), instead, proposed *Chiton crispus* Reeve, 1847, as a new type for *Ischnochiton*, a proposal that did not conform with Article 61 of the International Code of Zoological Nomenclature (1964). Later, KAAS (1979:856) suggested that GRAY's (1847a) notion of a single slit in *Ischnochiton* be modified to encompass species with one or two slits, a concept long in use by PILSBRY (1892a:53-54) and SMITH (1960:55).

Thus, KAAS & VAN BELLE (1980) returned to the traditional interpretation of *Ischnochiton*, this time divided into seven subgenera, with *Simplischnochiton* suppressed. But, in the most recent systematic classification of the

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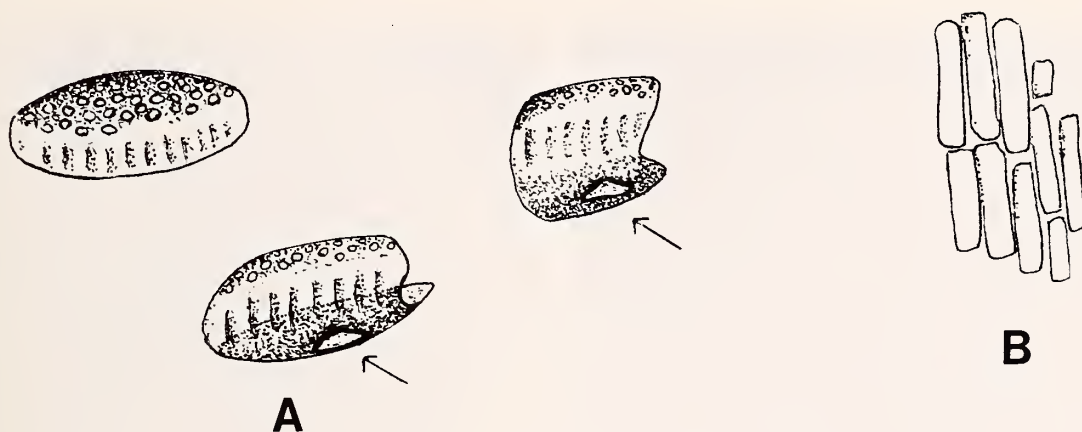


Figure 1

*Ischnochiton skoglundi* Ferreira, spec. nov.: Holotype (CAS 059841), girdle elements. A, dorsal surface scales, different views (arrow points to concavity on scale base); B, undersurface scales. Scale bar, 100  $\mu$ m.

chitons, VAN BELLE (1983), dividing *Ischnochiton* into eight subgenera, brought back *Simplischnochiton* for "*Ischnochitons* with no more than one slit . . . in the intermediary valves," and *Ischnochiton* s.s. for species with "two or more slits."

In my view of the systematics of Polyplacophora, subgeneric categories are neither necessary nor desirable. So, here as elsewhere (FERREIRA, 1983:311), *Ischnochiton*, a rather heterogeneous assemblage of species, is interpreted in accordance with the general characteristics outlined by SMITH (1960), i.e., accepting both one- and two-slitted species; and, as evidence may suggest, its well characterized "subgenera" are elevated to generic status (FERREIRA, 1981, 1985). *Simplischnochiton* is suppressed as a synonym.

*Ischnochiton skoglundi* Ferreira, spec. nov.

(Figures 1-5)

**Diagnosis:** Very small (up to 4.8 mm long), yellowish white chitons; shell wide, ovate; valves not beaked, carinate; tegmentum dull, sculptureless; lateral areas weakly elevated, hardly defined; mucro anterior. Slit formula 8-1-9. Girdle with imbricate, very small scales, with round spherules on upper surface, riblets on sides. Radula with unicuspid major lateral teeth.

**Type material:** Holotype (CAS 059841) and paratypes (CAS 059842; CAS 060251; LACM 2119; USNM 859001; ANSP 360105; SDNH 87085; Skoglund Colln.; Ferreira Colln.).

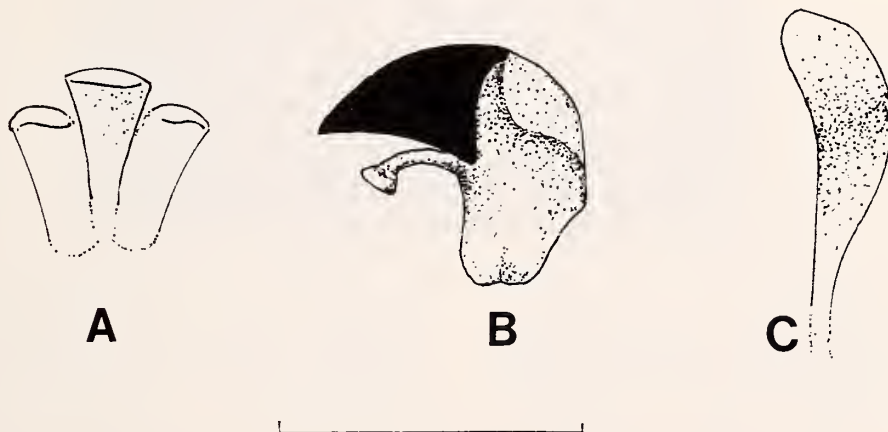


Figure 2

*Ischnochiton skoglundi* Ferreira, spec. nov.: Holotype (CAS 059841), radula. A, median and first lateral teeth; B, head of major lateral tooth; C, anterior end of spatulate tooth. Scale bar, 100  $\mu$ m.



## Explanation of Figures 3 to 5

Figure 3. *Ischnochiton skoglundi* Ferreira, spec. nov.: Paratype, 2.4 mm long (CAS 060251), dorsal surface. SEM micrograph.

Figure 4. *Ischnochiton skoglundi* Ferreira, spec. nov.: Paratype (CAS 059842) on dead shell.

Figure 5. *Ischnochiton skoglundi* Ferreira, spec. nov.: Same paratype as in Figure 3, girdle upper surface scales. SEM micrograph.

**Type locality:** Off Playa Novillero, Nayarit, Mexico (22°23'N, 105°45'W), dredged at 8–15 m (*leg.* Sally & Peter Bennett, Dec. 1975).

**Description:** Holotype (CAS 059841), dry preserved,

creamy white, about 4.8 mm long (largest specimen in lot), ovate, widest (2.3 mm) at valve *v*; valves thin, carinate, not beaked, posterior edges straight. Tegmentum dull, with no noticeable sculpture; lateral areas hardly

defined, very slightly elevated, with faintly distinguishable concentric rugosities; mucro anterior. Gills holobranchial (?). Articulamentum white; sutural laminae short, subrectangular; sinus shallow; width of valve i/width of valve viii, 1.1; on valve viii, width of sinus/width of sutural laminae, 0.5. Insertion teeth small, sharp; slit formula 8-1-9. Girdle dorsal surface black (an artifact) with translucent, imbricated scales (Figure 1-A); scales up to 80  $\mu\text{m}$  long, upper surface covered with minute, round spherules, lateral surface with some 12 riblets, base with roughly round, sharply defined concavity, about 15  $\mu\text{m}$  in diameter (feature never noticed in any other species); girdle ventral surface paved with transparent, rectangular scales (Figure 1-B) 40  $\times$  12  $\mu\text{m}$ , arranged in columns. Radula 1.2 mm long, comprising 28 rows of mature teeth; median teeth (Figure 2-A) about 50  $\mu\text{m}$  long, 25  $\mu\text{m}$  wide at anterior blade, narrowing sharply posteriorly; first lateral teeth 50  $\mu\text{m}$  long, 15  $\mu\text{m}$  wide at anterior blade; major lateral teeth with large, unicuspid head, with thin, long tubercle beneath (Figure 2-B); spatulate teeth 22  $\mu\text{m}$  wide anteriorly (Figure 2-C); outer marginal teeth 40  $\times$  25  $\mu\text{m}$  (length/width, 1.6).

Paratypes (Figures 3, 4) very similar to holotype, 2.0–4.1 mm long, width/length mean 0.76 ( $n = 10$ ;  $SD = 0.04$ ; range 0.71–0.85); ovate (mean width of valves v + vi consistently greater than mean width of valves iii + iv); curvature index (width of widest valve/average width of end valves) 1.28 ( $n = 5$ , including holotype). Girdle black in most specimens due to extraneous fuliginous material; SEM micrograph of girdle scales (Figure 5) shows the same ornamentation of round spherules and riblets.

**Distribution:** *Ischnochiton skoglundii* is known only from the type lot.

**Remarks:** Specimens of *Ischnochiton skoglundii* are of unusually small size, but they differ clearly from juveniles of any other known species in the eastern Pacific. It is quite distinct from any other *Ischnochiton* species in the area—*I. muscarius* (Reeve, 1847), *I. rugulatus* (Sowerby, 1832), and *I. eucosmius* Dall, 1919—in its ovate body-shape, carinate valves, sculptureless tegmentum, and in the girdle scales. The “ornamentation” seen on the girdle scales of *I. skoglundii*, consisting of minute spherules on the scale’s upper surface and riblets on the sides, has been seen and illustrated in three other species—*Lepidozona allynsmithi* Ferreira, 1974 (see FERREIRA, 1974: figs. 23 and 24), *Callistochiton portobelensis* Ferreira, 1976 (see FERREIRA, 1976: figs. 3–5), and *C. periconis* Dall, 1908 (see FERREIRA, 1979: figs. 22 and 23)—but not in *Ischnochiton*. The sharply delineated concavity observed at the base (insertion surface) of the scales of *I. skoglundii* seems to be a unique feature inasmuch as it has not been reported or here noted in any other species.

The species is named after Carol and Paul Skoglund, Phoenix, Arizona, who have generously provided these and many other specimens for study.

#### ABBREVIATIONS USED IN THE TEXT

- ANSP—Academy of Natural Sciences, Philadelphia, Pennsylvania.  
 CAS—California Academy of Sciences, San Francisco, California.  
 Colln.—Private collection.  
 LACM—Los Angeles County Museum of Natural History, Los Angeles, California.  
 SDNM—San Diego Museum of Natural History, San Diego, California.  
 USNM—U.S. National Museum of Natural History, Washington, D.C.

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